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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,855	08/25/2006	Naohiro Yoshida	129200	4180

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EXAMINER	
SHABMAN, MARK A	
ART UNIT	PAPER NUMBER
2856	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,855	YOSHIDA, NAOHIRO	
	Examiner	Art Unit	
	MARK SHABMAN	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see pages 1-6, filed 14 November 2008, with respect to the rejection(s) of claim(s) 1, 7 and 8 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new art.

Claim Rejections - 35 USC § 112

Claim 8 recites the limitation "the step of shutting down said shutdown valve" in line 12. There is insufficient antecedent basis for this limitation in the claim. The claim previous recites "closing a shutdown valve" but not "shutting down" said valve. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa US Patent 6,167,749 B1 (hereinafter referred to as Yanagisawa) in view of Gupta US patent 4,203,317 (hereinafter referred to as Gupta).

Regarding **claim 1**, Yanagisawa discloses an apparatus and method for detecting leaks in valves comprising a main valve V_1, a shutdown valve V_3 downstream of the main valve, a pressure monitoring device P_2 to monitor the pressure of the fuel gas supply channel 14 between the two valves, and a depressurization treatment 16 for depressurizing the inside of the gas supply channel 14. Determination of leakage is made by monitoring the pressure gauge for changes in pressure between the main valve and shutdown valve when both valves are closed, wherein an increase in pressure of the system indicates that the main valve V_1 is malfunctioning and a steady pressure indicates that the valve is functional and tight. During the depressurization treatment of the system, the depressurization device 16 is used to evacuate the channel 14 to a predetermined level, wherein upon closing the valve V_3, the pressure can be monitored by the monitoring means P_2, i.e. the pressure is in a pressure range in which the pressure can be monitored (column 4, lines19-31). Yanagisawa does not explicitly disclose using a "plurality of pressure monitoring devices with different pressure ranges" for monitoring the pressure in the channel as is claimed.

It was known in the art at the time of invention that when measuring different ranges of values, it is common to use different levels of precision depending on the required measurement. For example, one would not use a common meter stick for measuring millimeters with precision. In another example, while measuring voltages,

most voltmeters and multimeters allow for selection of different precision levels while testing to allow for the same scale to range from 0 to 5 volts or 0 to 500 volts. When measuring a value expected to be around 3 volts, one would not choose the later setting as it would be very inaccurate in its measurements. Gupta teaches measuring of fluid flow or leakage into a substance using an apparatus comprising low and high pressure gauges 41 and 43 for reading the pressure generated by pressure generator 19. This allows for pressure readings to be made on high pressure values with gauge 43 and more precise readings to be made on low pressure values using gauge 41. It would have been obvious to one of ordinary skill in the art at the time of invention to have used the teachings of Gupta in combination with those of Yanagisawa to allow for high pressure readings such as the 150 kgf/cm^2 as described in column 3 to be conducted by the high pressure gauge, and lower pressures i.e. 10 kgf/cm^2 to measured using the low pressure gauge to allow for greater precision in the readings, thus allowing even the smallest changes to be noticed.

Regarding **claim 2**, Yanagisawa teaches using the depressurization treatment device 16 to depressurize to a predetermined amount as recorded by pressure sensor P_2, thus that pressure monitoring device would monitor the pressure attained by the depressurization of the channel as claimed.

Regarding **claim 3**, as described previously, when the pressure in the sealed space 14 rises during testing, an indication of a leak in the main valve V_1 is determined.

Regarding **claim 4**, if the pressure within channel 14 of Yanagisawa were to drop during the testing, it would mean that the fuel gas supply channel or valve V_2 was the cause of the leak.

Regarding **claim 5**, the apparatus of Yanagisawa further comprises a line to an evacuated gas disposal plant for storage and disposal of gas flowing through the channel 14. The evacuation pump 16 would further drive this gas towards a recovery tank during the depressurization treatment.

Regarding **claim 6**, column 4 of Yanagisawa discloses a step of running the depressurization treatment device while the main valve and shutdown valve are closed.

Regarding **claim 7**, Yanagisawa discloses an apparatus and method for detecting leaks in valves comprising a fuel gas supply source 12, a main valve V_1 which controls the supply of the gas source, a shutdown valve V_3 downstream of the main valve, a pressure monitoring means P_2 to monitor the pressure of the fuel gas supply channel 14 between the two valves, and a depressurization treatment 16 for depressurizing the inside of the gas supply channel 14. Determination of leakage is made by monitoring the pressure gauge for changes in pressure between the main valve and shutdown valve when both valves are closed, wherein an increase in pressure of the system indicates that the main valve V_1 is malfunctioning and a steady pressure indicates that the valve is functional and tight. It would have been obvious to one of ordinary skill in the art at the time of invention to monitor the pressure using a computer or similar means to allow for the monitoring to be conducted at a remote

location to the channel. During the depressurization treatment of the system, the depressurization device 16 is used to evacuate the channel 14 to a predetermined level, wherein upon closing the valve V_3, the pressure can be monitored by the monitoring means P_2, i.e. the pressure is in a pressure range in which the pressure can be monitored (column 4, lines19-31). Yanagisawa does not explicitly disclose using a "plurality of pressure monitoring means with different pressure ranges" for monitoring the pressure in the channel as is claimed.

It was known in the art at the time of invention that when measuring different ranges of values, it is common to use different levels of precision depending on the required measurement. For example, one would not use a common meter stick for measuring millimeters with precision. In another example, while measuring voltages, most voltmeters and multimeters allow for selection of different precision levels while testing to allow for the same scale to range from 0 to 5 volts or 0 to 500 volts. When measuring a value expected to be around 3 volts, one would not choose the later setting as it would be very inaccurate in its measurements. Gupta teaches measuring of fluid flow or leakage into a substance using an apparatus comprising low and high pressure gauges 41 and 43 for reading the pressure generated by pressure generator 19. This allows for pressure readings to be made on high pressure values with gauge 43 and more precise readings to be made on low pressure values using gauge 41. It would have been obvious to one of ordinary skill in the art at the time of invention to have used the teachings of Gupta in combination with those of Yanagisawa to allow for high pressure readings such as the 150 kgf/cm^2 as described in column 3 to be conducted

by the high pressure gauge, and lower pressures i.e. 10 kgf/cm^2 to measured using the low pressure gauge to allow for greater precision in the readings, thus allowing even the smallest changes to be noticed.

Regarding **claim 8**, the apparatus of Yanagisawa can operate as described in column 4 by closing the main valve while depressurizing the channel downstream and closing the shutdown valve depressurizing the channel downstream (steps 4-6), monitoring the variation of pressure in the channel after both valves have been closed (step 5) and determining the operating state of the main valve based on a variation of the pressure in the channel (step 7). The step of shutting down the shutdown valve, the valve is closed when the pressure in the channel is at a point measurable by the pressure gauge (step 4 teaches what happens if the channel is not evacuated to a predetermined level i.e. outside of the range measurable). It would further be obvious to one of ordinary skill in the art to ensure that the pressure after evacuating the channel is in a range measurable by the pressure gauge, otherwise any fluctuation would not be detectable by the gauge.

Regarding **claim 9**, Yanagisawa does not explicitly disclose using a "plurality of pressure sensors with different pressure ranges" for monitoring the pressure in the channel as is claimed. It was known in the art at the time of invention that when measuring different ranges of values, it is common to use different levels of precision depending on the required measurement. For example, one would not use a common meter stick for measuring millimeters with precision. In another example, while

measuring voltages, most voltmeters and multimeters allow for selection of different precision levels while testing to allow for the same scale to range from 0 to 5 volts or 0 to 500 volts. When measuring a value expected to be around 3 volts, one would not choose the later setting as it would be very inaccurate in its measurements. Gupta teaches measuring of fluid flow or leakage into a substance using an apparatus comprising low and high pressure gauges 41 and 43 for reading the pressure generated by pressure generator 19. This allows for pressure readings to be made on high pressure values with gauge 43 and more precise readings to be made on low pressure values using gauge 41. It would have been obvious to one of ordinary skill in the art at the time of invention to have used the teachings of Gupta in combination with those of Yanagisawa to allow for high pressure readings such as the 150 kgf/cm^2 as described in column 3 to be conducted by the high pressure gauge, and lower pressures i.e. 10 kgf/cm^2 to measured using the low pressure gauge to allow for greater precision in the readings, thus allowing even the smallest changes to be noticed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK SHABMAN whose telephone number is (571)270-3263. The examiner can normally be reached on M-F 8:00am - 4:30pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. S./
Examiner, Art Unit 2856
/Hezron Williams/
Supervisory Patent Examiner, Art Unit 2856